

## AMENDMENTS TO THE CLAIMS:

1. (currently amended) A sensing device comprising:  
a vessel;  
a plurality of sensor beads located within said vessel to form interstitial spaces  
therethrough, said plurality of sensor beads comprising at least two different types of beads, each of said types of beads being made of a material different from the material of any other of said types of beads; and  
a plurality of biomolecules bound to at least a portion of said plurality of beads, each of said biomolecules having a fluorescent tag, said plurality of biomolecules comprising at least two different kinds of biomolecules, each of said different kinds of biomolecules being bound to a respective type of said at least two different types of sensor beads.
2. (original) The sensing device of claim 1, wherein said vessel has a width of 250  $\mu\text{m}$  to 500  $\mu\text{m}$ .
3. (original) The sensing device of claim 1, wherein said vessel has a length of 0.5 cm to 3.0 cm.
4. (original) The sensing device of claim 1, wherein said vessel has a depth of 50  $\mu\text{m}$  to 100  $\mu\text{m}$ .
5. (original) The sensing device of claim 1, wherein said plurality of beads are located in microfluidic channels in said vessel.
6. (original) The sensing device of claim 5, wherein said microfluidic channels have a width of 10  $\mu\text{m}$  to 500  $\mu\text{m}$ .
7. (original) The sensing device of claim 1, wherein said microfluidic channels are comprised of optically transparent material.

8. (original) The sensing device of claim 7, wherein said optically transparent material comprises glass.

9. (original) The sensing device of claim 7, wherein said optically transparent material comprises quartz.

10. (original) The sensing device of claim 7, wherein said optically transparent material comprises a polymer.

11. (original) The sensing device of claim 10, wherein said polymer comprises poly(dimethylsiloxane).

12. (currently amended) The sensing device of claim [[1]] 52, wherein said plurality of sensor beads comprises at least two different types of sensor beads.

13. (original) The sensing device of claim [[1]] 52, wherein said plurality of biomolecules comprises at least two different kinds of biomolecules.

14. (currently amended) The sensing device of claim [[13]] 1, wherein each of said two different kinds of biomolecules includes a different fluorescent tag.

15. (original) The sensing device of claim 14, wherein said sensing device comprises at least two sensing regions, each of said sensing regions including one of said at least two different kinds of biomolecules.

16. (original) The sensing device of claim 15, wherein said vessel includes obstructive features therein for preventing flow of said sensor beads between said at least two sensing regions.

17. (canceled)
18. (original) The sensing device of claim 1, further comprising spacer beads within said vessel.
19. (original) The sensing device of claim 1, wherein said sensing device further comprising foundation beads within said vessel.
20. (original) The sensing device of claim 19, wherein said foundation beads are comprised of glass or a metallic.
21. (original) The sensing device of claim 20, wherein said foundation beads have a diameter of 30  $\mu\text{m}$  to 1000  $\mu\text{m}$ .
22. (original) The sensing device of claim 1, wherein said vessel includes obstructive features therein for preventing said sensor beads from flowing along said vessel.
23. (currently amended) The sensing device of claim 22, wherein said obstructive features include neighboring obstructive features ~~of said obstructive features are~~ located 5  $\mu\text{m}$  to 20  $\mu\text{m}$  from each other.
24. (currently amended) The sensing device of claim 1, wherein said sensor beads are ~~[[1]]~~ 0.1  $\mu\text{m}$  to 1000  $\mu\text{m}$  in diameter.
25. (original) The sensing device of claim 1, wherein said sensor beads are coated with at least one coating of said plurality of biomolecules.
26. (currently amended) The sensing device of claim 25, wherein bound

biomolecules of said plurality of biomolecules are bound to said plurality of [[bead]] beads by biotin.

27. (original) The sensing device of claim 1, wherein said interstitial spaces each has a volume of 1 nL to 1000 nl.

28-51. (canceled)

52. (new) A sensing device comprising:  
a vessel;  
a plurality of sensor beads located within said vessel to form interstitial spaces therethrough; and  
a plurality of biomolecules bound to at least a portion of said plurality of beads, each of said biomolecules having a fluorescent tag.

53. (new) A sensing device comprising:  
a vessel;  
a plurality of sensor beads located within said vessel to form interstitial spaces therethrough; and  
a plurality of biomolecules bound to at least a portion of said plurality of beads, each of said biomolecules having a fluorescent tag, said plurality of biomolecules comprising at least two different kinds of biomolecules, each of said two different kinds of biomolecules including a different fluorescent tag.